

Attorney Docket No.: DRE-0063
Inventors: Basude et al.
Serial No.: 09/980,134
Filing Date: July 2, 2002
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This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1: (original) A surface stabilized microbubble comprising a microparticle having a hydrophobic surface or an affinity for a specific gas and a gas microbubble which attaches to or encapsulates the microparticle.

Claim 2: (original) The surface stabilized microbubble of claim 1 produced by a method comprising:

- (a) storing the microparticle in a gaseous environment; and
- (b) introducing the microparticle into a liquid so that the microparticle carries with it some gas in which it was stored into the liquid so that a gas microbubble attaches to or encapsulates the microparticle.

Claim 3: (original) The surface stabilized microbubble of claim 1 produced by a method comprising:

- (a) storing the microparticle with an affinity toward a specific gas in the specific gas; and
- (b) introducing the microparticle into a liquid so that the

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microparticle carries with it some gas in which it was stored into the liquid so that a gas microbubble attaches to or encapsulates the microparticle.

Claim 4: (original) The surface stabilized microbubble of claim 1 produced by a method comprising introducing the microparticle having a hydrophobic surface into a liquid which contains a dissolved gas thereby creating a surface for the dissolved gas to come out of solution as gas microbubbles which attach to or encapsulate the microparticle.

Claim 5: (original) The surface stabilized microbubble of claim 1 produced by a method comprising introducing the microparticle having a hydrophobic surface into a liquid which contains gas microbubbles produced by mechanical or chemical means so that the gas microbubble can attach to or encapsulate the microparticle.

Claim 6: (original) A method of enhancing ultrasonic detection in a patient comprising intravenously administering to a patient the surface stabilized microparticle of claim 1 and performing an ultrasound scan on the patient.

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Claim 7: (original) The surface stabilized microparticle of claim 1 further comprising a drug within the surface stabilized microbubble.

Claim 8: (original) A method of delivering a drug to a selected site in a patient comprising

(a) administering to the patient the surface stabilized microbubble of claim 7; and

(b) insonating the selected site in the patient so that the surface stabilized microbubble vibrates or ruptures thereby releasing the drug to the selected target site.

Claim 9: (original) The surface stabilized microparticle of claim 1 further comprising a targeting moiety attached to the surface stabilized microbubble.

Claim 10: (currently amended) An ecogenic surface which enhances ultrasound detection of an object, said ecogenic surface comprising ~~an object coated a coating~~ with a hydrophobic surface or a surface with an affinity for a specific gas and gas bubbles which attached attach to or encapsulate the object to be ultrasonically detected.

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Claim 11: (currently amended) The ecogenic surface of claim 10 produced by a method comprising:

(a) storing the object to be ultrasonically detected in a gaseous environment; and

(b) introducing the object to be ultrasonically detected into a liquid so that the object to be ultrasonically detected carries with it some gas in which it was stored into the liquid so that gas microbubbles attach to or encapsulate the object to be ultrasonically detected.

Claim 12: (currently amended) The ecogenic surface of claim 10 produced by a method comprising:

(a) storing the object with to be ultrasonically detected, said object having an affinity toward a specific gas, in the specific gas; and

(b) introducing the object to be ultrasonically detected into a liquid so that the object to be ultrasonically detected carries with it some gas in which it was stored into the liquid so that gas microbubbles attach to or encapsulate the object to be ultrasonically detected.

Claim 13: (currently amended) The ecogenic surface of claim

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10 produced by a method comprising introducing the object to be ultrasonically detected, said object having a hydrophobic surface, into a liquid which contains a dissolved gas thereby creating a surface for the dissolved gas to come out of solution as gas microbubbles which attach to or encapsulate the object to be ultrasonically detected.

Claim 14: (currently amended) The ecogenic surface of claim 10 produced by a method comprising introducing the object to be ultrasonically detected, said object having a hydrophobic surface, into a liquid which contains gas microbubbles produced by mechanical or chemical means so that the gas microbubbles can attach to or encapsulate the object to be ultrasonically detected.